

PGDM (IB), 2014-16
Operations Management
IB-302

Trimester –III, End-Term Examination: April 2015

Time allowed: 2.5 Hours

Max Marks: 50

Roll No: _____

Instruction: Students are required to write Roll No on every page of the question paper, writing anything except the Roll No will be treated as **Unfair Means**. In case of rough work please use answer sheet.

Sections	No. of Questions to attempt	Marks	Marks
A	3 out of 5 (Short Questions)	5 Marks each	$3 \times 5 = 15$
B	2 out of 3 (Long Questions)	10 Marks each	$3 \times 10 = 20$
C	Compulsory Case Study	15 Marks	15
		Total Marks	50

SECTION A

Q1. One of the approaches that can be effective in reducing the impact of production bottlenecks in a job shop or batch operating setting is to use smaller lot sizes.

- a. What is the impact of a production bottleneck?
- b. Explain how small lot size reduces the impact of bottleneck operations?

Q2. What general trade-offs are involved in master scheduling in terms of the frozen portion of the schedule? Who needs to interface with master schedule and why?

Q3. Compute the multifactor productivity for each week. Also suggest what do the productivity figures suggest. Assume 40 hour weeks and an hourly wage of Rs.12. Overhead is 1.5 times weekly labor cost. Material cost is Rs.6 per pound.

Week	Output (Units)	Workers	Material (Pound)
1	30,000	6	450
2	33,600	7	470
3	32,200	7	460
4	35,400	8	480

Q4. An assembly operation has a 90% learning curve. The line has just begun work on a new item, the initial unit required 28hours. Estimate the time that will be needed to complete

- a. The first five unit
- b. Unit 20 through 23.

Note: Learning curve coefficient @90%

Unit	1	2	3	4	5	19	20	21	22	23
Unit time	1	.9	.846	.810	.783	.639	.634	.630	.625	.621
Total time	1	1.9	2.746	3.556	4.339	13.974	14.608	15.237	15.862	16.483

Q5. Why has ISO 900 become so important Indian firms that do overseas business?

SECTION B

Q1.

A. M/s K.C.Fibers is a manufacturer of coarse cloth or grey cloth. Mr. Mahajan the production incharge of the plant at Kundli in Haryana wants to implement C. quality control system in the organization. On 1st January 2011, Mr. K. C. Goel gives the nod for the implementation of the system. Mr. Mahajan carries out the preliminary survey for the implementation of the system to the plant at Kundli. The plant manufactures 20 beams a day. And each beam is 200meters long with the width of 1.5 meters. He comes out with the following plan. Usually a meter of cloth is taken as a sample and checked for defects of different kinds such as Knots, Oily or grease patches or spots, Missed weave, Cotton seeds and shell particles.

The sample may have number of these defects. For instance if it has one knot, two oil spots, one missed weave, then the number of defects are counted as $(1+2+1=4)$ On 19th of January, 2011 the following data are recorded

Sample No.	Number of defects	Sample No.	Number of defects
1	4	11	12
2	9	12	9
3	3	13	3
4	12	14	9
5	5	15	2
6	3	16	2
7	2	17	1
8	2	18	3
9	1	19	1
10	9	20	4

Design an appropriate control chart? (7 marks)

B. M/s lays foods ltd. In case of potato chips pack, the net weight of chips in a pack are 9 oz. Company specifies the tolerance of $\pm .5$ oz. The company on the base of experience has recorded the mean weight of the chips pack as 8.8oz and the standard deviation of .12oz. We would like to know the process capability ratio and process capability index. (3 marks)

Q2. A. Define a project you are thinking of pursuing in near future.

1. List the key performance objectives.
2. List the key activities.
3. List the projects milestones, such as required progress reports or the completion of major tasks.
4. How important are behavioral aspects of the project? For example, did the project team agree on project objectives, individual work assignment and so on?
5. Where are the other unforeseen problems? If so how are they resolved?
6. Emphasize on project float and the CPM? (7 Marks)

B. Why might a person wish to be involved with a critical path activity? What are some of the reason one might have for not wanting this association? (3 Marks)

Q3.

A. It has been said that forecasting using exponential smoothing is like driving by looking in the rear-view mirror. What are the conditions that would have to exist for

driving a car that are analogous to the assumptions made when using exponential smoothing? (7 marks)

B. What capability would an organization have to have to not need forecasts? (3 Marks)

SECTION C

M/s WIPL Ltd. the producer of small motors which are used in submersible pumps and the other pumps which are used for coolers, Air conditioners, refrigerators etc. The company instituted a quality management program in 2010 and has recorded the following quality cost and accounting measures for four years.

Particulars	Year 2010	Year 2011	Year 2012	Year 2013
Quality Cost	Rs.	Rs.	Rs.	Rs.
Prevention	27000	41500	74600	112300
Appraisal	155000	122500	113400	107000
Internal failure	386400	469200	347800	219100
External failure	242000	196000	103500	106000
Total	810400	829200	639300	544400
Accounting measures	Rs.	Rs.	Rs.	Rs.
Sales	4360000	4450000	5050000	5190000
Manufacturing costs	1760000	1810000	1880000	1890000
Material cost	264000	271500	282000	283500
Total Cost	2740000	2930000	2940000	3080000

The company wants to assess its quality-assurance program. You are promoted from the post of graduate trainee to assistant manager quality after you completed your management degree by going on sabbatical for one year. You are directed by the vice president production to make the presentation as to the performance of the 4 year old quality program. You are likely to show the progress through data analysis and graphical presentation of the same?